89/2021/

कोविड–19

संख्या– 724/71–1–2021–जी–228/2017टीसी0–1

प्रेषक,

आलोक कुमार,
प्रमुख सचिव,
उ0प्र0 शासन।

सेवा में,

1– **कुलपति/कुलसचिव**, किंग जार्ज चिकित्सा विश्वविद्यालय, लखनऊ/यू0पी0यू0एम0एस0, सैफई, इटावा।
2– **निदेशक**, डा0 राम मनोहर लोहिया, आयुर्विज्ञान संस्थान, लखनऊ/एस0जी0पी0जी0आई0, लखनऊ/जी0आई0एम0एस0, ग्रेटर नोएडा/एस0एस0पी0एच0 एण्ड पी0जी0टी0आई0 नोएडा।
3– **प्रधानाचार्य**, स्वशासी राज्य चिकित्सा महाविद्यालय, अयोध्या/बस्ती/बहराइच/फिरोजाबाद/शाहजहॉपुर।
4– **प्रधानाचार्य**, मेडिकल कालेज, आगरा/मेरठ/प्रयागराज/कानपुर/झांसी/गोरखपुर/अम्बेडकरनगर/आजमगढ़/सहारनपुर/कन्नौज/जालौन/बॉदा/बदायूँ।
5– प्रधानाचार्य/निदेशक, निजी मेडिकल कालेज/संस्थान (द्वारा महानिदेशक, चिकित्सा शिक्षा एवं प्रशिक्षण)

चिकित्सा शिक्षा अनुभाग–3 **लखनऊः दिनांक 17 मई, 2021**

विषय– कोरोना संक्रमण के बाद Mucormycocis **(ब्लैक फंगस) बीमारी की रोकथाम के सम्बन्ध में गाइडलाइन्स।**

महोदय,

आप अवगत है कि कोविड संक्रमित मरीजों के स्वस्थ होने के पश्चात कतिपय मरीजों में Mucormycocis (ब्लैक फंगस) बीमारी प्रकाश में आयी है। इसके उपचार हेतु प्राथमिकता पर कार्यवाही किया जाना अपरिहार्य है। इस हेतु एस0जी0पी0जी0आई0 लखनऊ की विशेषज्ञ समिति द्वारा गाइडलाइन्स तैयार की गयी है (प्रति संलग्न)।

2– अतः इस सम्बन्ध में मुझे यह कहने का निदेश हुआ है कि कोरोना संक्रमण के बाद Mucormycocis (ब्लैक फंगस) बीमारी की रोकथाम हेतु एस0जी0पी0जी0आई0 लखनऊ की विशेषज्ञ समिति द्वारा तैयार की गयी गाइडलाइन्स के अनुसार अपेक्षित कार्यवाही सुनिश्चित कराने का कष्ट करें।

संलग्नक-यथोपरि।

भवदीय,

(आलोक कुमार)
प्रमुख सचिव।

89/2021

संख्या– 724(1)/71–1–2021, तद्दिनांक।

प्रतिलिपिः निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

1. निजी सचिव, मा0 मंत्री जी, चिकित्सा शिक्षा विभाग, उ0प्र0 शासन।
2. अपर मुख्य सचिव, मा0 मुख्यमंत्री, उ0प्र0 शासन।
3. अपर मुख्य सचिव, चिकित्सा एवं स्वास्थ्य विभाग, उ0 प्र0 शासन।
4. प्रमुख स्टाफ आफिसर, मुख्य सचिव, उ0प्र0 शासन।
5. महानिदेशक, चिकित्सा शिक्षा एवं प्रशिक्षण, उ0प्र0 लखनऊ।
6. गार्ड फाइल।

आज्ञा से,

(एस0पी0 सिंह)
अनु सचिव।

COVID RELATED MUCORMYCOSIS (CAM)

A. Source of Mucormycosis:

- Mucormycosis (sometimes called zygomycosis) is a serious fungal infection caused by a group of moulds called mucormycetes.
- People get mucormycosis by coming in contact with the fungal spores in the environment. For example, the lung or sinus forms of the infection can occur after someone breathes in spores.
- These fungi live throughout the environment, particularly in soil and in decaying organic matter, such as leaves, compost piles, or rotten wood.
- **Key Message:**
  - Most patients in early stage do not know that they have the disease, progression is very rapid hence high index of suspicion is key to early diagnosis.
  - Early diagnosis is important for treatment and better outcomes.
  - Good Glycemic Control.
  - Judicious use of steroids is the most important prevention.

B. **High Risk patients:**

- Covid-19 patients with Diabetes Mellitus
- Most importantly high and uncontrolled diabetes.
- Patients receiving steroids as a part of their Covid-19 treatment.
- Patients who have received immunomodulatory drugs e.g. Tocilizumab.
- Previously immunocompromised patients on cancer treatment or with autoimmune conditions, on steroids for other medical condition, solid organ transplant, impaired Renal functions or Renal failure.
- Patients on Ventilators and on long term oxygen therapy
- Patients with neutropenia
- Too much iron in the body (iron overload or hemochromatosis)
- **Key Message:**

- ➢ High degree of suspicion should be maintained in all Covid -19 patients as some patients are diagnosed with Diabetes during Covi-19 infection even without any past history.

C. Prevention:

- Prevention is the best policy to early treatment of Mucormycosis.
- Important preventive steps
  - Good glycemic control in Diabetic patients
  - Judicious use of Steroids. Strict diabetic control during steroid therapy and even after recovery during post covid period
  - Low threshold for Antifungal in at risk patients, local wash or systemic therapy
  - Tubing of oxygen should be changed frequently and not to be reused
  - Humidification of Oxygen and frequent changing of humidifier solution
  - Regular gargle by Saline and douching with Isotonic saline solution
  - Frequent post recovery evaluation and patient education for the disease for early diagnosis
  - Avoidance of water-damaged areas, construction or excavation sites and eating spoiled foods.
  - Wearing a mask can keep you from inhaling fungal spores present in the environment
  - Keep your hospital and home environment fungus and spore-free.
  - Boost your immune system and don't take unnecessary risks if you are immunocompromised, have an underlying disease or have had a surgery or transplant recently.
  - Keep a track of your health and focus on keeping your blood sugar, blood pressure, weight and cholesterol under control.
- **Key Message:**
  - ➢ Currently there are no recommendations to use prophylactic antifungal therapy for preventing mucormycosis.

D. **Signs & Symptoms:**

- Nasal Crusting and Blood stained nasal Discharge
- Facial pain, Headache
- Unilateral facial swelling
- Nasal obstruction, Nasal sinus congestion
- Eye Swelling (Proptosis) , Eyelid swelling, Vision loss, Diplopia, Restricted eye movement, retro-orbital pain, Ptosis

- Palatal discoloration, loosening tooth, Discoloration of Face and nose
- Black lesions on nasal bridge or upper inside of mouth that quickly become more severe
- Blood stained nasal discharge with or without fever.

E. **Diagnosis:**

- Early referral to an ENT Specialist and Opthalmologist
- Anterior Rhinoscopy /Nasal Endoscopy
- KOH wet mount (deep nasal)
- Tissue for Fungal Culture and sensitivity removed after surgery
- Nasal Endoscopy Showing Blackening of Middle Turbinate and other nasal structures
- Contrast MRI-PNS and Orbit Prefferable
- Contrast CT-PNS 2nd Choice

F. **Treatment:**

Currently a 3-pronged approach is recommended for treating mucormycosis

Mucormycosis treatment to be done by a team of ENT surgeon/Ophthalmologist/

- Elimination or control of predisposing factors
- Antifungal therapy along with supportive medical therapy
- Surgical debridement

Surgery:

- Is done by an experienced ENT Specialist/Opthalmologist/Maxillofacial Surgeon
- Aggressive surgical debridement of dead tissues till bleeding happens (to be ascertained by MRI /CT :non contrast areas are involved area) should be considered .
- It improves both morbidity and mortality.
- Tissue to be sent for Fungal Culture and sensitivity in Normal Saline

Antifungal therapy

- Amphotericin-B (Liposomal) 5mg/Kg per day upto 2 to 3 grams is the main antifungal to be used
- **For Alternative or Step down therapy we can use**

- **Posaconazole 15 ml TDS for 3 weeks**
- Isovoconazole- Loading dose I.V. followed by Oral therapy
- Antibiotics to control super added infections
- Topical Amphotericin-B in the operated field and ocular injections

- **Salvage therapy-**Use of posaconazole or isavuconazole as salvage therapy for patients who do not respond to or cannot tolerate amphotericin-B
- **Duration of therapy:** Antifungals to be continued till clinical and radiological cure is achieved.

Control of Predisposing factors

- Good glycemic control
- Look for proper control of electrolyte disturbance and Renal function test
- Control of other mentioned predisposing features

Uttar Pradesh Expert Committee on 2nd COVID-19 wave

COVID Associated Mucormycosis (CAM)

- Increasing CAM is being reported in India.
- India has the highest number of cases of Diabetes, Covid-19 and now CAM.

- Mucormycosis is a serious fungal infection caused by mucormycetes.
- These fungi live throughout the environment, particularly in soil and in decaying organic matter..
- Rhino-orbital-cerebral and pulmonary Mucormycosis is the major component of CAM

High Risk Factors
- Poorly controlled diabetes
- Received steroids or immuno-modulatory drugs in Covid-19
- Previously Immunocompromised status
- Patients on ventilators and on long term oxygen therapy
- Iron overload or hemochromatosis

Symptoms of concern
- Facial pain
- Sinus headache
- Stuffy nose
- Decreased vision
- Bloody nasal discharge
- Dental pain

Signs of concern
- Facial swelling
- Facial discoloration
- Ptosis/Proptosis
- Restricted EOM
- Opthaloplegia
- Panopthalmitis
- Palatal/Nasal Eschar

Diagnosis
- No Biomarker for diagnosis exists
- Biopsy remains the mainstay
- KOH wet mount (deep nasal) tissue for Fungal Culture and sensitivity
- CT/MRI-PNS, orbit
- CT-Chest

Broad Management Guidelines

Medical Management

❖ **Main therapy:** Amphotericin-B (Liposomal) 5mg/Kg per day upto 2 to 3 grams

❖ **Alternative or Step down therapy:**
- Posaconazole 15 ml TDS for 3 weeks
- Isovoconazole- Loading dose I.V. followed by Oral therapy
- Antibiotics to control secondary infections
- Topical Amphotericin-B in the operated field and ocular injections

❖ **Salvage therapy:**
- Use of posaconazole or isovuconazole for non-responding or cannot tolerate amphotericin-B

❖ **Duration of therapy**
- Antifungals to be continued till clinical and radiological cure is achieved.

Surgical Management

- By an experienced ENT Specialist Endoscopically
- Aggressive surgical debridement of dead tissues ascertained by MRI /CT non contrast areas
- It improves both morbidity and mortality.

Control predisposing factors

- Good glycemic control
- Taper or stop steroids if feasible
- Look for proper control of electrolyte disturbance and Renal function test
- Control of Hospital and Home environment
- Stricter adherence to infection prevention & control practices

Key Messages:
- Most patients in early stage do not know that they have the disease, progression is very rapid hence high index of suspicion is key to early diagnosis.
- High index of suspicion in all Covid -19 patients with or without history of Diabetes.
- Early diagnosis is important for treatment and better outcomes.
- Good Glycemic Control.
- Judicious use of steroids.
- No role of prophylactic antifungal therapy for preventing mucormycosis.